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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,703	08/08/2002	Frank Lin	9458-US-PA	9331

31561 7590 11/15/2004

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER

MEEKS, TIMOTHY HOWARD

ART UNIT PAPER NUMBER

1762

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,703

Applicant(s)

LIN, FRANK

Examiner

Timothy H. Meeks

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Application Status

Claims 1-20 as amended in the 9/17/04 response are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-8, 12-16, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Doi (5,632,821).

The limitations of claims 1 and 13 are disclosed in Doi as follows:

- "performing a plasma enhanced.....on a first batch of substrate" and "removing...." (col. 5, lines 40-44, batch of substrates taught at col. 4, lines 37-40),
- "performing a cleaning....." (col. 5, lines 45-62);
- "performing a pre-deposition process....." and "performing a discharge plasma treatment for reducing accumulated charges....." (col. 6, lines 5-23, please note that the introduction of monosilane and hydrogen and formation of plasma discharge thereof meets both claimed steps of "performing a pre-deposition process....." and "performing a discharge plasma treatment.....". As to the added intended use language of "for reducing accumulated charges in the chamber", Doi forms a plasma discharge of hydrogen gas which is disclosed by

applicants as performing the function of reducing accumulated charges, hence the hydrogen plasma discharge of Doi is capable of performing this intended use.

Furthermore, the step of evacuating the byproducts from this step prior to introducing a second substrate and depositing is a "pre-deposition process")

- "loading a second batch..." and "placing a second batch...." (col. 6, lines 23-35 and col. 4, lines 37-40), and,
- "repeating steps....." (col. 2, lines 57-59 disclosing desirability for "mass-production plasma CVD process" which inherently involves performing the steps repeatedly and col. 4, lines 32-38 disclosing carrying multiple substrates (i.e., "one by one") and batches of substrates to tools inherently involves repeating the process).

The limitations of the dependent claims are disclosed as follows:

- claims 2-4 and 14-16: col. 5, lines 55-60,
- claims 6, 7, 18, and 19: col. 6, lines 23-34, and
- claims 8, 12, and 20: col. 5, lines 9- 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-5, 8-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta (5,824,375) in view of Doi (5,632,821).

The following limitations of claims 1 and 13 are disclosed in Gupta:

- "performing a plasma enhanced.....on a substrate" and "removing...." (col. 2, lines 63-65
- and col. 6, lines 45-60);
- "performing a cleaning....." (col. 8, lines 37-44),.
- "performing a pre-deposition process....." and "performing a discharge plasma treatment....." (col. 8, lines 44-65, please note that Gupta forms a helium or helium and argon plasma discharge which gases are disclosed by applicants as performing the function of removing accumulated charges))
- loading a second substrate in the chamber and coating by PECVD (col. 9, lines 1-31); and,
- "repeating steps....." (col. 1, lines 44-48 disclosing periodic cleaning of the chamber to
- control particle contamination from film buildup in the chamber from processing).

Gupta discloses processing of a single substrate at a time rather than "loading a second batch..." as required in claim 1 or "..... on a first batch of substrate..." or "...a second batch of substrate..." as required by claim 13. However, because Doi discloses that it is known to perform PECVD on substrates either substrate by substrate or batch by batch (col. 4, lines 33-38) and processing a batch of substrates has the obvious advantage of coating more than one substrate at once which would reasonably be

expected to increase process throughput, it would have been obvious to have provided a batch of substrates for PECVD processing to obtain this advantage.

The limitations of the dependent claims are disclosed as follows:

- claims 2-4 and 14-16: col. 8, lines 44-53 of Gupta;
- claims 5 and 17: col. 9, lines 1-35 of Gupta; and
- claims 8-12 and 20: col. 8, lines 45-50 of Gupta, noting that Gupta is open to any inert gas of which hydrogen and nitrogen are.

Response to Arguments

Applicant's arguments filed 9/17/04 have been fully considered but they are not persuasive.

Applicants argue that the claims require the process steps be performed in a certain order. However, there is no such limitation regarding order of the process steps in the claims. Applicants argue that the process of Doi does not constitute "performing a deposition process in a substrate-free condition to isolate contaminants in the chamber". The examiner can find no such limitations in the claims. Claims 1 and 13 recite "performing a pre-deposition process". This step is disclosed by Doi as established in the rejection above. Applicants argue that the plasma of Doi is not intended to reduce accumulated charges in the chamber as is now claimed. However, Doi forms a plasma discharge with a hydrogen gas which is disclosed to be capable of performing the intended function of reducing accumulated charges by applicant in the specification at paragraph 21. As such, plasma discharge of Doi is deemed to be

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capable of performing the intended use now recited in the claims of reducing accumulated charges.

Applicants argue that Gupta does not disclose a "pre-deposition process to isolate contaminants". Again, the claims do not require the limitation "to isolate contaminants". Furthermore, Gupta discloses that the "seasoning" of the reactor (which is a "pre-deposition process" since it is done before the wafers are supplied to the chamber and material deposited thereon) blocks and retards contaminants (abstract). Applicants argue that Gupta does not disclose a plasma discharge for reducing accumulated charges. Gupta forms a helium or helium/argon plasma discharge which are described by applicants in paragraph 21 of their specification as performing this intended function, as such, the plasma of Gupta is capable of performing the now claimed intended function of reducing accumulated charges.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

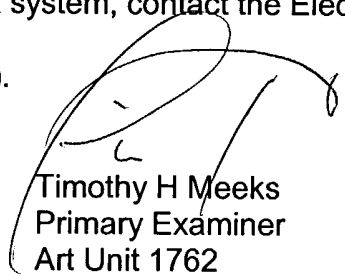
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (571) 272-1423. The examiner can normally be reached on Mon 6-6, T-Th 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy H Meeks
Primary Examiner
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